

THE INVENTION CLAIMED IS:

1. A door lock mechanism configured for use with a trailer having at least one door, said door lock mechanism comprising:
 - a sleeve mounted on the door of the trailer, said sleeve extending at least a
 - 5 substantial dimension of the door;
 - a lockrod disposed generally in said sleeve;
 - a handle assembly connected to said lockrod and external to said sleeve, said handle assembly having structure thereon configured to engage corresponding structure on the trailer, thereby locking the door in place, said handle assembly
 - 10 configured for actuation to rotate said lockrod, thereby selectively locking and unlocking the door.
2. A door lock mechanism as defined in claim 1, wherein said sleeve extends a substantial height of the door.
3. A door lock mechanism as defined in claim 1, wherein said sleeve is
- 15 formed from a generally U-shaped channel in which said lockrod is disposed and first and second rails disposed on opposite sides of said U-shaped channel, said first and said rails being attached to the door.
4. A door lock mechanism as defined in claim 1, further comprising an end cap disposed at an end of said sleeve, said lockrod extending through an opening
- 20 in said end cap, and a thrust bearing disposed between said end cap and said handle assembly.
5. A door lock mechanism as defined in claim 4, wherein said thrust bearing is formed from high density polyethylene.

6. A door lock mechanism as defined in claim 4, wherein said thrust bearing is split.

7. A door lock mechanism as defined in claim 1, said handle assembly including a handle and a tongue configured to engage corresponding structure on the trailer, thereby locking said handle in place.

8. A door lock mechanism as defined in claim 7, said handle assembly further including a lever disposed on said handle, said lever including a pin that extends through an aperture in said handle, said lever configured such that said lever can be manipulated relative to said handle to provide that said pin is disposed over said tongue, thereby locking said handle in place.

9. A door lock mechanism as defined in claim 7, wherein said tongue is generally T-shaped and is configured to engage a corresponding generally T-shaped slot on the trailer.

10. A door lock mechanism as defined in claim 1, said handle assembly including a handle, a dog configured to engage corresponding structure on the trailer, and a member configured for engagement with the corresponding structure on the trailer, said member being moved into engagement with said corresponding structure primarily by gravity.

11. A door lock mechanism as defined in claim 10, wherein said member is mounted on said handle and is inclined at a predetermined angle relative to said handle.

12. A door lock mechanism as defined in claim 10, wherein said member is

generally L-shaped.

13. A door lock mechanism as defined in claim 10, wherein said dog and said member are configured to engage a generally T-shaped slot on the trailer.

14. A door lock mechanism as defined in claim 1, wherein a top of said lockrod has structure thereon configured to engage corresponding structure on the trailer, and a bottom of said lockrod is connected to said handle assembly.

15. A door lock mechanism as defined in claim 1, wherein said sleeve extends a substantial height of the door, said handle assembly has a cam thereon configured to engage corresponding structure on the trailer, further comprising an end cap disposed at an end of said sleeve, said lockrod extending through an opening in said end cap, and a thrust bearing disposed between said end cap and said handle assembly, said handle assembly including a handle and structure configured to engage corresponding structure on the trailer, thereby locking said handle in place, wherein said structure is configured to engage corresponding structure on the trailer, wherein a top of said lockrod has structure thereon configured to engage corresponding structure on the trailer, and a bottom of said lockrod is connected to said handle assembly.

16. A door lock mechanism as defined in claim 1, said handle assembly having structure thereon configured to engage corresponding structure on the trailer, thereby locking the door in an open position.

17. A door lock mechanism as defined in claim 1, said handle assembly including a cam thereon, and further including a retaining structure on the side of the trailer, the door being capable of being moved to an open position such that

the door is opened and swung proximate to a side wall of the trailer, and wherein when the door is in the open position, said cam is engaged with said retaining structure.

5 18. A door lock mechanism as defined in claim 17, wherein said retaining structure is a wicket which is pivotally attached to the side of the trailer.

19. A door lock mechanism as defined in claim 1, wherein said handle assembly hangs below the door.

20. A door lock mechanism configured for use with a trailer having at least one door, said door lock mechanism comprising:
10 a lockrod mounted on the door; and
a handle assembly connected to said lockrod, said handle assembly having a first structure thereon configured to engage corresponding structure on the trailer, thereby locking the door in place, said handle assembly configured for actuation to rotate said lockrod, thereby selectively locking and unlocking the
15 door, said handle assembly including a handle and a second structure provided on said handle and configured to engage corresponding structure on the trailer, thereby locking said handle in place.

21. A door lock mechanism as defined in claim 20, wherein said second structure on said handle assembly includes a tongue disposed on said handle, a
20 lever disposed on said handle, said lever including a pin that extends through an aperture in said handle, said lever configured such that said lever can be manipulated relative to said handle to provide that said pin is disposed over said tongue.

22. A door lock mechanism as defined in claim 21, wherein said tongue is generally T-shaped and is configured to engage a corresponding generally T-shaped slot on the trailer.

23. A door lock mechanism as defined in claim 20, wherein a top of said lockrod has structure thereon is configured to engage corresponding structure on the trailer, and a bottom of said lockrod is connected to said handle assembly.

24. A door lock mechanism as defined in claim 20, further comprising an end cap disposed at an end of said sleeve, said lockrod extending through an opening in said end cap, and a thrust bearing disposed between said end cap and said handle assembly.

25. A door lock mechanism as defined in claim 20, said handle assembly having cam structure thereon configured to engage corresponding structure on the trailer.

26. A door lock mechanism as defined in claim 25, wherein said second structure provided on said handle assembly includes a handle, a dog provided on said handle to engage a corresponding opening on the trailer, a member provided on said handle and configured for engagement with the corresponding opening on the trailer, said member being moved into engagement with said corresponding opening primarily by gravity.

27. A door lock mechanism as defined in claim 26, wherein said member includes a gripping portion and a tongue portion, said tongue portion configured to move into engagement with the corresponding opening on the trailer.

28. A door lock mechanism as defined in claim 26, wherein said member is generally L-shaped.

29. A door lock mechanism as defined in claim 26, wherein said member is inclined at a predetermined angle relative to said handle.

5 30. A door lock mechanism as defined in claim 26, wherein said second structure further includes a base portion having an aperture therethrough, wherein said member includes an aperture therethrough configured such that when said member is in engagement with the corresponding opening in the trailer, said aperture through said member is in alignment with said aperture through said base
10 portion such that an associated pin can be inserted through said apertures.

31. A door lock mechanism as defined in claim 26, wherein said second structure further includes a base portion having a protuberance thereon, wherein said member includes an aperture therethrough such that when said member is in engagement with the corresponding opening in the trailer, said aperture is in
15 engagement with said protuberance on said base portion.

32. A door lock mechanism as defined in claim 26, wherein said second structure further includes a base portion, wherein said member is pivotally mounted on said base portion.

20 33. A door lock mechanism as defined in claim 26, further comprising a cam attached to said handle assembly and configured to engage a corresponding keeper on the trailer.

34. A door lock mechanism as defined in claim 26, wherein said member

includes a tongue portion, said member being configured such that said tongue portion can be manipulated relative to said structure to provide that said tongue portion is disposed over said dog.

35. A door lock mechanism as defined in claim 20, further including a securing member provided on a side of the trailer, and the door being capable of being moved to an open position such that the door is opened and swung proximate to the side wall of the trailer, and wherein when the door is in the open position, said second structure is engaged with said securing member.

36. A door lock mechanism as defined in claim 35, wherein said securing member is a wicket which is pivotally attached to the side of the trailer.

37. A door lock mechanism as defined in claim 20, wherein said handle assembly hangs below the door.

38. A door lock mechanism configured for use with a trailer having at least one door, said door lock mechanism comprising:

a sleeve mounted on the door of the trailer;

an end cap disposed at an end of said sleeve;

a lockrod disposed in said sleeve and extending through an opening in said end cap;

a handle assembly connected to said lockrod, said handle assembly having structure thereon configured to engage corresponding structure on the trailer, thereby locking the door in place, said handle assembly configured for actuation to rotate said lockrod, thereby selectively locking and unlocking the door; and

a thrust bearing disposed between said end cap and said handle assembly.

39. A door lock mechanism as defined in claim 38, said handle assembly further including a handle, a tongue disposed on said handle, a lever disposed on said handle, said lever including a pin that extends through an aperture in said handle, said lever configured such that said lever can be manipulated relative to said handle to provide that said pin is disposed over said tongue, thereby locking said handle in place.

40. A door lock mechanism as defined in claim 38, wherein a top of said lockrod has structure thereon configured to engage corresponding structure on the trailer, and a bottom of said lockrod is connected to said handle assembly.

41. A door lock mechanism as defined in claim 38, said handle assembly including a handle, a dog provided on said handle to engage a corresponding opening on the trailer, a member provided on said handle configured for engagement with the corresponding opening on the trailer, said member being moved into engagement with said corresponding opening primarily by gravity.

42. A door lock mechanism as defined in claim 38, wherein said thrust bearing is formed from high density polyethylene.

43. A door lock mechanism as defined in claim 38, wherein said thrust bearing is split.

44. A door lock mechanism as defined in claim 38, wherein said end cap is formed from stainless steel.

45. A door lock mechanism as defined in claim 38, further including a cam provided on said lockrod and configured to engage corresponding structure on the

trailer, wherein a second end cap is provided at the opposite end of said sleeve and a second thrust bearing is disposed between said end cap and said cam.

46. A door lock mechanism as defined in claim 45, wherein each said thrust bearing is formed from high density polyethylene and is split, and each said end cap is formed from stainless steel.

47. A door lock mechanism as defined in claim 38, wherein said handle assembly hangs below the door.

48. A trailer comprising:

a floor;

a rear frame having an opening therethrough and structure on a bottom portion thereof;

a door mounted in said rear frame;

a lockrod mounted to said door; and

a handle assembly connected to said lockrod, said handle assembly having a first structure thereon configured to engage said structure on said bottom portion of said rear frame, thereby locking said door in place, said handle assembly configured for actuation to rotate said lockrod, thereby selectively locking and unlocking said door, said handle assembly including a handle and a second structure provided on said handle and configured to engage into said opening in said rear frame, thereby locking said handle in place.

49. A trailer as defined in claim 48, wherein said second structure includes a tongue disposed on said handle, a lever disposed on said handle, said lever including a pin that extends through an aperture in said handle, said lever configured such that said lever can be manipulated relative to said handle to

provide that said pin is disposed over said tongue.

50. A trailer as defined in claim 49, wherein said opening is generally T-shaped and said tongue is generally T-shaped for engagement therewith.

51. A trailer as defined in claim 48, wherein said rear frame includes top
5 structure thereon and a top of said lockrod includes structure thereon configured to engage said corresponding top structure on said rear frame, and a bottom of said lockrod is connected to said handle assembly.

52. A trailer as defined in claim 48, further including a sleeve in which said
10 lockrod is disposed, an end cap disposed at an end of said sleeve, said lockrod extending through an opening in said end cap, and a thrust bearing disposed between said end cap and said handle assembly.

53. A trailer as defined in claim 48, said first structure on said handle
assembly comprises a cam.

54. A trailer as defined in claim 48, wherein said second structure provided on
15 said handle assembly includes a handle, a dog provided on said handle to engage said opening in said rear frame, a member provided on said handle configured for engagement with said opening in said rear frame, said member being moved into engagement with said opening primarily by gravity.

55. A trailer as defined in claim 54, wherein said member includes a gripping
20 portion and a tongue portion, said tongue portion configured to move into engagement with said opening in said rear frame.

56. A trailer as defined in claim 54, wherein said member is generally L-shaped.

57. A trailer as defined in claim 54, wherein said member is inclined at a predetermined angle relative to said handle.

5 58. A trailer as defined in claim 54, wherein said second structure further includes a base portion on which said member is mounted, said base portion having an aperture therethrough, said member including an aperture therethrough configured such that when said member is in engagement with said opening in
10 said rear frame, said aperture through said member is in alignment with said aperture through said base portion such that an associated pin can be inserted through said apertures.

59. A trailer as defined in claim 54, wherein said second structure further including a base portion on which said member is mounted, said base portion having a protuberance thereon, wherein said member includes an aperture
15 therethrough such that when said member is in engagement with the corresponding opening in the trailer, said aperture is in engagement with said protuberance on said base portion.

60. A trailer as defined in claim 54, wherein said second structure further includes a base portion, wherein said member is pivotally mounted on said base
20 portion.

61. A trailer as defined in claim 54, wherein said member includes a tongue portion, said member being configured such that said tongue portion can be manipulated relative to said structure to provide that said tongue portion is

disposed over said dog.

62. A trailer as defined in claim 48, further including a side wall and base rail connecting said side wall to said floor, a securing member provided on said base rail, and said door being capable of being moved to an open position such that said
5 door is opened and swung proximate to said side wall, and wherein when said door is in the open position, said second structure is engaged with said securing member.

63. A trailer as defined in claim 62, wherein said securing member is a wicket which is pivotally attached said base rail.

10 64. A trailer as defined in claim 48, wherein said handle assembly hangs below the door.